Thursday, October 14, 2010 12:41:57 PM



Page 1

Item ID:

D3391-013

Accept



Setup Start



Revision ID:

Item Name: Mid Tube Assembly

Start Date:

10/14/2010

Start Qty: 1.00

Req'd Qty: 1.00



Cust Item ID:

Customer:

Reference:

Approvals: Process Plan

QC:

Required Date: 10/22/2010

Process Plan: ___

Date D

Date()-10-7-9

Date: _____ SPC (Y/N):

Tooling:

onng:

Date:

Date:

Start

Stop



Stop

Sequence ID/ Work Center ID Operation Description

Revision Nbr

Set Up/ Run Hours Tool ID

Tool # Plan Code Accept Qty

Run

Reject R Qty N

Reject Insp. Number Stamp

Draw Nbr

D3391 Rev H

100

Skidtubes

Skidtubes

Skidtubes

Memo

0.00

0.00

1-Cut tube to finish length as per Dwg D3391

2-Identify as D3391-013

3-Drill pilot holes using DT8796 (including "B" holes) and drill only 1 fwd saddle hole on one side only as per Dwg D3391

4-Open saddles and GHW holes to $\emptyset 0.375$ " exept for fwd saddle hole of detail "1"

5-Remove .030" from Fwd indexing Ridge as per Dwg D3391

6-Remove indexing ridge on Fwd & Aft end of skidtube as per Dwg D3391

7-Deburr

8-Drill #30 pilot holes using wearplate Jig DT8217 Identify 00.250" holes with paint marker,

9-Open wearplate holes of D3391-013 assembly detail section G-G to Ø0.250" (14 holes) as per Dwg D3391 and 2 holes in section Detail "J", do not open wearplate holes of section "J"

10-Open wearplate holes of D3391-013 assembly detail section H-H to Ø0.297" (20 holes) as per Dwg D3391



10-10-20

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES				
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr
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						<i>I</i>

Part No:		PAR #:	Fault Category:	NCR: Yes No DQA:	Date:
	Resolution:		Disposition:	QA: N/C Closed:	Date:

NCR:	,	WORK ORDER NON-CONFORMANCE (NCR)						
		Description of NC		Corrective Action Section B			Ammental	Ammanal
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC inspector
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Page 2

Item ID:

D3391-013

Accept



Setup Start

Stop



Revision ID:

Item Name:

Mid Tube Assembly

Start Date:

10/14/2010

QC:

Start Oty: 1.00

Required Date: 10/22/2010 Req'd Qty: 1.00



Cust Item ID: Customer:

Reference:

Approvals:

Process Plan:

Date: _____

Date: Tooling:

SPC (Y/N):

Date:

Date:

Start Run

Stop

Sequence ID/ **Work Center ID** Operation Description Set Up/ **Run Hours** Tool ID

Tool # Plan

Code

Accept Reject Qty Qty

Reject Number Stamp

Insp.

11-Open .375" holes to .438" ***do not open fwd saddle holes***

12- Locate electric step holes at 39.6875" from fwd end and drill using DT 9612

13-Locate D3391-021 in D3391-023 at 9.00" (see view z-z)

14- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149 locating from previusly drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previusly tranfer drilled pilot holes in D3391-013/-011 to 0.438" dia. in D3391-011

15- Transfer drill 2 wearplate holes into D3391-011 using DT8217, locating from two previusly drilled holes, drill remaining wearplate holes into D3391-011.

16- Locating from two fwd wearplate holes drill remaining 6 wearplte holes in D3391-011 using DT8937

17- Open 2 fwd wearplate holes in D3391-013 to .250" dia.

18- counterbore two aft wearplate holes in D3391-011 as per dwg

19- Open 12 wearplate holes in D3391-011 to 0.297" dia.

20- Deburr and blow out all chips from inside tube

05-10-20



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W/O:				WORK ORDER CHANGES							
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Page 3

Item ID:

D3391-013

Accept

Setup Start

Stop



Revision ID:

Start Date:

Item Name: Mid Tube Assembly

Start Qty: 1.00 10/14/2010

Required Date: 10/22/2010 Req'd Qty: 1.00



Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Date:

Tooling:

0.00

SPC (Y/N):

Set Up/

Run Hours

Date:

Date:

Run

Reject

Qty

Start

Stop



Sequence ID/

Work Center ID

110

QC

Quality Control

Operation Description

QC5- Inspect part completeness to step on W/O

0.00

101s/lac

Tool ID

Tool # Plan Code

Accept Qty

Reject Number Stamp

Insp.

120

HandFinish

Hand Finishing

Chemical Conversion Coat per QSI005 4.1

Memo

0.00

0.00

10-12-2

130

Quality Control

QC3- Inspect Part Finish

0.00

Memo

Memo

0.00

W/O:		WORK ORDER CHA	WORK ORDER CHANGES										
DATE	STEP	PROCEDURE CHANGE	Ву	Date	, Qty	Approval Chief Eng /, Prod Mgr	Approval QC Inspector						
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Page 4

Item ID: **Revision ID:** D3391-013

Item Name: Mid Tube Assembly

Start Date:

10/14/2010

Start Qty: 1.00



Accept



Run

Setup Start





Required Date: 10/22/2010

Req'd Qty: 1.00

Cust Item ID: Customer:

Reference:

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ΑD	provals:	

Process Plan:

Date:

Date:

SPC (Y/N):

Date:

Date:

Start



Stop

Sequence ID/ **Work Center ID**

140

Skidtubes Skidtubes

Operation Description Set Up/ **Run Hours**

Tooling:

0.00

Tool ID

Tool # Plan Code

Accept Qty

Reject Qty

Reject Insp. Number Stamp

Skidtubes

1- Open holes to finish size as per dwg. #\$\int \colon \colon

2- Prepare for welding

3- Bond web in place as per Dwg D3391 & QSI 015.

******Ensure Web Aligment ****** A/R Sikaflex Batch: m//6040 Exp. date: 11.09-30

150

QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

W/O:		WORK ORDER (CHANGES		See Contract of the second
DATE	STEP	PROCEDURE CHANGE	By Da	ate Qty	Approval Chief Eng / OC Inspector Prod Mgr
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Part No):	PAR #: Fault Category:	NCR: Yes No	DQA:	Date:

	Resolution: Disposition: QA: N/C Closed:					sed:	Date:		
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DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Chief Eng	Approval QC Inspector	
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Page 5

Insp.

Item ID: D3391-013 Accept Setup Start Revision ID: Stop Mid Tube Assembly Item Name: Start Qty: 1.00 **Start Date:** 10/14/2010 **Cust Item ID: Required Date:** 10/22/2010 Req'd Qty: 1.00 **Customer:** Reference: Run Start Process Plan: Date: Tooling: **Approvals:** Date: Stop Date: SPC (Y/N): Date: Sequence ID/ Operation Tool ID Tool # Plan Reject Reject Set Up/ Accept **Work Center ID** Description Qty Number Stamp Code Qty **Run Hours** 160 0.00 Skidtubes Skidtubes 1-Weld crossbolt spacer as per dwg D3391 A/R ALUM Batch: 15778 Skidtubes & QSI 004 2-grind weld flush 3- Transfer drill electric step pilot holes only from D3391-013 into D3391-015 4- Open elecrtic step holes 0.391"per dwg D3391 (section L-L) 5- Open elecrtic step holes 0.297"per dwg D3391 (section M-M) 6- Open elecrtic step holes 0.250" per dwg D3391 (section LL-LL)

170

QC10- Inspect visual per QSI004- ground welds

Memo

0.00 Sulv/2

Quality Control

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W/O:			WO	RK ORDER CHANGE	S			1 •
DATE	STEP	PRO	CEDURE CHAI	NGE	Ву	Date Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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DATE	STEP	Description of NC Section A	Corrective Action Initial Action Descript Chief Eng Chief Eng		Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector
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Page 6

Item ID:

D3391-013

Accept

Setup Start

Revision ID:

Item Name:

Mid Tube Assembly

Start Date: 10/14/2010

Required Date: 10/22/2010

Start Qty: 1.00

Req'd Qty: 1.00



Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:_____

Tooling:

Date:

Run

Start

Stop

Stop



QC: _____ Date: ____

SPC (Y/N):

Date:

Sequence ID/

Work Center ID

180

QC

Quality Control

Operation Description

QC5- Inspect part completeness to step on W/O

Set Up/ Run Hours

Oulor/22

Tool ID

Tool # Plan Code

Accept Qty

Reject Qty

Reject Number Stamp

Insp.

185

HandFinish

Pressure Wash per QSI005 4.3

Memo

0.00

Memo

0.00

Hand Finishing

AND REALODINE AS PER PAR09-043

XI & W 1/02/3

190

Powdercoat

Powder Coating

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

Memo

0.00

0.00

Use paint screwe to mack inserts.

FINISH TIME: 7

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Dart Aerospace	Ltd
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W/O:			WO	RK ORDER CHANG	ES				ı 4
DATE	STEP	PRO	OCEDURE CHAN	IGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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Page 7

Insp.

Stamp

Thursday, October 14, 2010 12:41:57 PM Item ID: D3391-013 Accept Setup Start **Revision ID:** Stop Item Name: Mid Tube Assembly Start Qty: 1.00 **Start Date:** 10/14/2010 **Cust Item ID: Required Date:** 10/22/2010 Req'd Qty: 1.00 **Customer:** Reference: Start Run Approvals: Process Plan: Date: Tooling: Date: Stop Date:_____ SPC (Y/N): Date: Sequence ID/ Operation Set Up/ **Tool ID** Tool # Plan Reject Accept Reject Description **Work Center ID Run Hours** Code **Qty** Oty Number 200 QC3- Inspect Part Finish 0.00 _ M 402) 28 0.00 Memo Quality Control 210 0.00 1 6 9 1102/28 Skidtubes Skidtubes 0.00 Memo 1- insert D3391-011 into D3391-13 Skidtubes insert T-pins into first and third fwd saddle holes

ON FIRST SIDE ONLY drill out 2nd and forth fwd saddles holes to 0.500" as

per DSI 9364

4-remove T-pins and locate DT9415 from first and third crossbolt hole using T-pins and clekos

5-ON 2ND SIDE ONLY ream out 2nd and forth saddle hole to 0.499". Remove DT9415

6- deburr, re-alodine and blow out chips

press fit D3591-1 spacers using DT9416 starting from 0.500" side

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W/O:			WO	RK ORDER CHANC	GES					
DATE	STEP	PRO	OCEDURE CHAN	IGE	В	у	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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Part No	:	PAR #:	Fault Categ	jory:	NCR: `	Yes N	lo DQ	A:	_ Date: _	
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NCR:			WORK ORDE	R NON-CONFORM	ANCE (N	(CR)				
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Page 8

Item ID:

D3391-013

Accept



Date:

Setup Start

Stop



Revision ID:

Mid Tube Assembly Item Name:

Required Date: 10/22/2010

Start Date:

10/14/2010

Start Qty: 1.00

Reg'd Oty: 1.00



Date:

Cust Item ID:

Customer:

Tool ID

Reference:

Approvals:

Process Plan:

Date:

Tooling:

SPC (Y/N):

Date:

Start Stop



Sequence ID/ Work Center ID

220

QC

Operation Description

HandFinishing

QC5- Inspect part completeness to step on W/O

Set Up/ **Run Hours**

0.000 102/28

Code

Qty

Tool # Plan

Accept Reject **Qty**

Run

Reject Number

Insp. Stamp

Quality Control

230

HandFinish

Hand Finishing

Memo

Memo

Memo

Install inserts

0.00

0.00

240

Quality Control

QC5- Inspect part completeness to step on W/O

0.00 S works

Inspect thread of each insert using DT8821

Dart Ae	rospace	Ltd							, ,
W/O:			V	ORK ORDER CHANG	ES				,
DATE	STEP	PRO	CEDURE CH	IANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspector
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DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	on Sign & Date		tion C	Chief Eng	QC Inspecto
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Thursday, October 14, 2010 12:41:57 PM



Page 9

Item ID:

D3391-013

Accept

Setup Start



Revision ID:

Item Name:

Required Date: 10/22/2010

Mid Tube Assembly

Start Date:

10/14/2010

Start Qty: 1.00

Req'd Qty: 1.00



Cust Item ID: **Customer:**

Reference:

Approvals:

Process Plan: _____ Date: ____

Tooling:

Date: Date:

Start

Stop

1 & M 1102/28

Stop



Sequence ID/ **Work Center ID**

250

HandFinish

Operation Description

HandFinishing

Set Up/ **Run Hours**

Date:_____

0.00

SPC (Y/N):

0.00

Tool ID

Tool # Plan Accept Code Qty

Reject **Oty**

Run

Reject Insp. Number

Stamp

Hand Finishing

Assemble as per dwg D3391

QC5- Inspect part completeness to step on W/O

260

QC

Quality Control

Memo

270

Packaging

Identify as per dwg & Stock Location: WO

0.00

D412.742-041/B62962

Memo

Packaging

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W/O:			WO	RK ORDER CHANGE	S			· · · · · · · · · · · · · · · · · · ·	<u>·</u>
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Page 10

Item ID:

D3391-013

Accept

Setup Start

Stop



Revision ID:

Item Name:

Mid Tube Assembly

Start Date:

10/14/2010

Start Qty: 1.00

Required Date: 10/22/2010 Req'd Qty: 1.00

Cust Item ID: Customer:

Reference:

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Process Plan:

Operation

Description

Date:_____

QC21- Final Inspection - Work Order Release

Date: Tooling:

SPC (Y/N):

Set Up/

Run Hours

Date:

Date:

Start

Stop

Qty

Reject

Run

Sequence ID/

Work Center ID

280

Memo

0.00

0.00

Tool ID

Tool # Plan Code

Accept Qty

Reject Number

Insp. Stamp

Quality Control

W/O:											
DATE	STEP			WORK ORDER CH	HANGE						
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Picklist Print

Thursday, October 14, 2010 12:42:01 PM

Work Order ID: 62972

Parent Item:

D3391-013

Parent Item Name:

Mid Tube Assembly



Start Date: 10/14/2010

Required Date: 10/22/2010

Page 1

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP A□05.12.13□New Issue□EC

IPP B□06.02.09□Dwg rev.D EC

IPP Rev:06-03-28 Update Manufacturing Instructions JLM□□

IPP rev D 07.03.14 dwg Rev F EC

IPP Rev:E ECN 1056 07-11-13 DD verified by: EC

IPP Rev:F 08-07-28 chg 0.332" to 0.391" dim. hole in comment DD verified

by:EC

IPP Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC
IPP Rev:H 08-09-10 revH as per dwg DD verified by:EC IPP rev J
10.03.30 revised process, added D3391-015 to pick list EC verified: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch		Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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Part No: _		PAR #:	Fault Category:	NCR: Yes No DQA:	Date:
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NCR:			WORK ORDER NON-CONFORMANCE (NCR)									
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Thursday, October 14, 2010 12:42:01 PM

Work Order ID: 62972

Parent Item:

D3391-013

Parent Item Name: Mid Tube Assembly

Start Date: 10/14/2010

Required Date: 10/22/2010

Start Qty: 1.00

Required Qty: 1.00

124.0000



MS27039C4-08

D3391-011

Fwd Tube Assembly D3391-015

Aft Tube Assembly

D3681-1

Spacer

D3389-1

Web

SCREW

No

Manufactured

Purchased

No

Manufactured No

No Manufactured

Manufactured

No

Location Loc Oty ST293 124 114472 4 114721 100 17831 20 140 Each

100

Each

Each

Each

28.0000

Loc Code

0.0000

0.0000

Location Loc Qty LG 28 56802 14 57656 14 210

Each 4.0000

Loc Code

Location LG

62014

Loc Oty

Loc Code

W/O:			WO	RK ORDER CHANGE	S				·¥ ,
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DATE	E STEP Description of NC			tion B V		cation	Approval	Approval	
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Thur,sday, October 14, 2010 12:42:01 PM

Work Order ID: 62972		
Parent Item: D3391-013		
Parent Item Name: Mid Tube Assembly	Sta	rt Date: 10/14/2010 Required Date: 10/22/2010 art Qty: 1.00 Required Qty: 1.00
ALS4-1032-225 Purchased	No 230 Each 4,860.000	10 10 21 woz/28
	Location Loc Oty Loc Code PK011 4860 110768 4860	XIO
ALS4-428-165 Purchased	No 230 Each 107.0000	11/102/75
	Loc QtyLoc CodeFP7	
	6989 7 ST282 100 114172 100	
D3591-1 Manufactured	No 230 Each 35.0000	2 2 11 4 -02 1 28
Bushing	Location Loc Qty Loc Code ST072 35 47121 2 57369 33	
ALS4-1032-130 Purchased	57350 33 No 250 Each 969.0000	26 26 JU 1162 28
	Location Loc Qty Loc Code PKG11 920 M II ≤ 114723 920	581 F <u>V26</u>
	ST282 10 110511 10 ST381 39	
	114654 39	

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Thursday, October 14, 2010 12:42:01 PM

Work Order ID: 62972		. '								
Parent Item: D3391-0	013									·
Parent Item Name: Mid	Tube Assembly				· ·		St	art Date: 1	0/14/2010	Required Date: 10/22/2010
							S	tart Qty: 1.	00	Required Qty: 1.00
AN3C4A	•	Purchased	No		250	Each	1,361.000	10	10	,
									11	1 1 - C
BOLT						*		11681/1881	<i></i>	4/62/20
			Locat	<u>ion</u>	. <u>I</u>	oc Qty	Loc Code			
			ST303			3	M1167	04	X(O	
				115438		3				
			ST350			1358				
				114108		14				
		•		114416 114523		12 2				
				115300		330				•
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	NAS1149C0332	Purchased	No		250	Each	29.0000	10	10	
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washer	IIIIII 85 1861					XN 1163	0 0	\$ 	XIO	Il ulorlad
			Locat	<u>ion</u>	<u>I</u>	oc Qty	Loc Code			
			ST245			29				
				107534		29				
AN960C416L		Purchased	No		250	Each	180.0000	4	4	
WASHER Y NAS 1149		1	N	ot in Syct	(v				\mathcal{A}	102/28
WASHER V NAS 1149	(6 432R	/ MIIC 80		VeTl						11000
			Docar	iou	<u> </u>	oc Qty	Loc Code			
			FG			44			X4	y .
				104925		44				(
			ST346			136				`
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		•		107008		10				
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				69220		41				

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Page 5

Thursday, October 14, 2010 12:42:01 PM

Work Order ID: 6	2972								
Parent Item: D	03391-013								
Parent Item Name:	Mid Tube Assembly			110.			Start Date: 1 Start Qty: 1		Required Date: 10/22/2010 Required Qty: 1.00
D3401-041		Manufactured	No		250	Each	13.0000	1 1	10225
				Location FP 46029 50316	<u>Loc</u>	13 12 1	Loc Code	X(- - -
D3564-13		Manufactured	No		250	Each	31.0000 1	1 !	11/02/25
				Location FP17 59660 60862 61828 62229		Oty 31 1 8 10 12	Loc Code 13 65572	X_(• - - -
D3566-13		Manufactured	No		250	Each	31.0000 1	1 <u> </u>	ulozlze
	•			Location FP012 60209 61996	Loc	Oty 31 6 25	1365527 1364070	<u> </u>	- - -
D3672-1		Manufactured	No		250	Each	855.0000 10	4 94\	11/02/28
				Location ST077 42329 52505	<u>Loc</u>	855 150 705	Loc Code		- - -

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DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Chief Eng	QC Inspector

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Page 6

Thursday, October 14, 2010 12:42:01 PM

Work Order ID: 62972

Parent Item:

D3391-013

Parent Item Name: Mid Tube Assembly



Location ST077

47023

57704

Start Date: 10/14/2010

Required Date: 10/22/2010

Start Qty: 1.00

Required Qty: 1.00

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Phenolic Washer

MS27039C1-09

Manufactured

250

Each 527.0000

No

Loc Qty 527 16 511 250 Each

Loc Code

50.0000

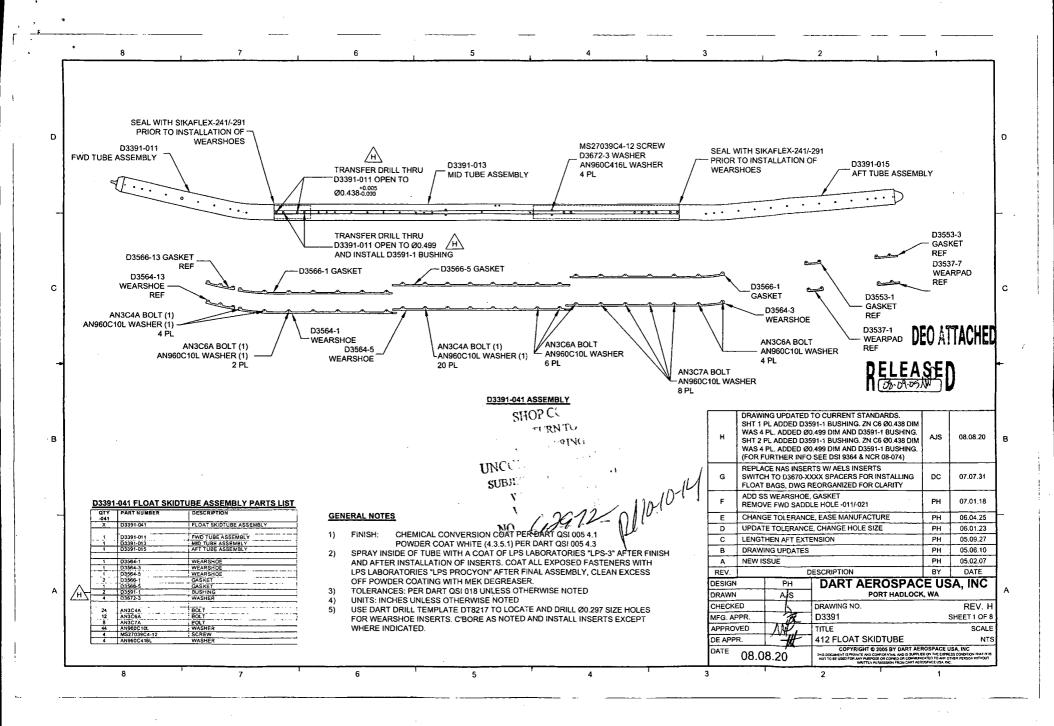
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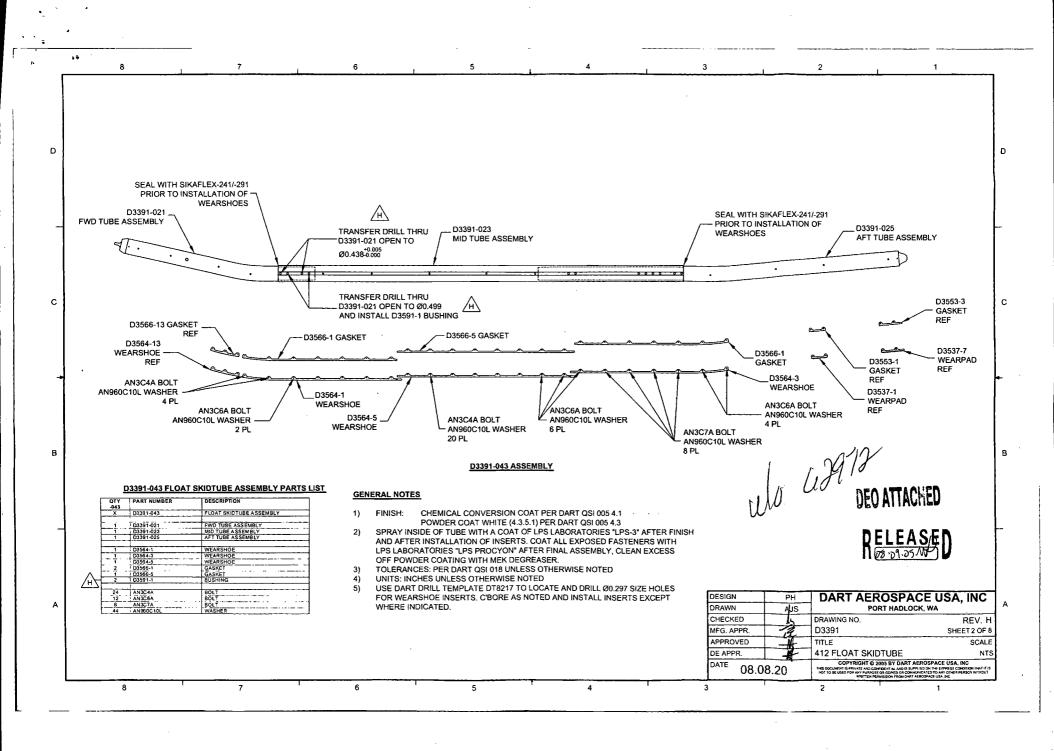
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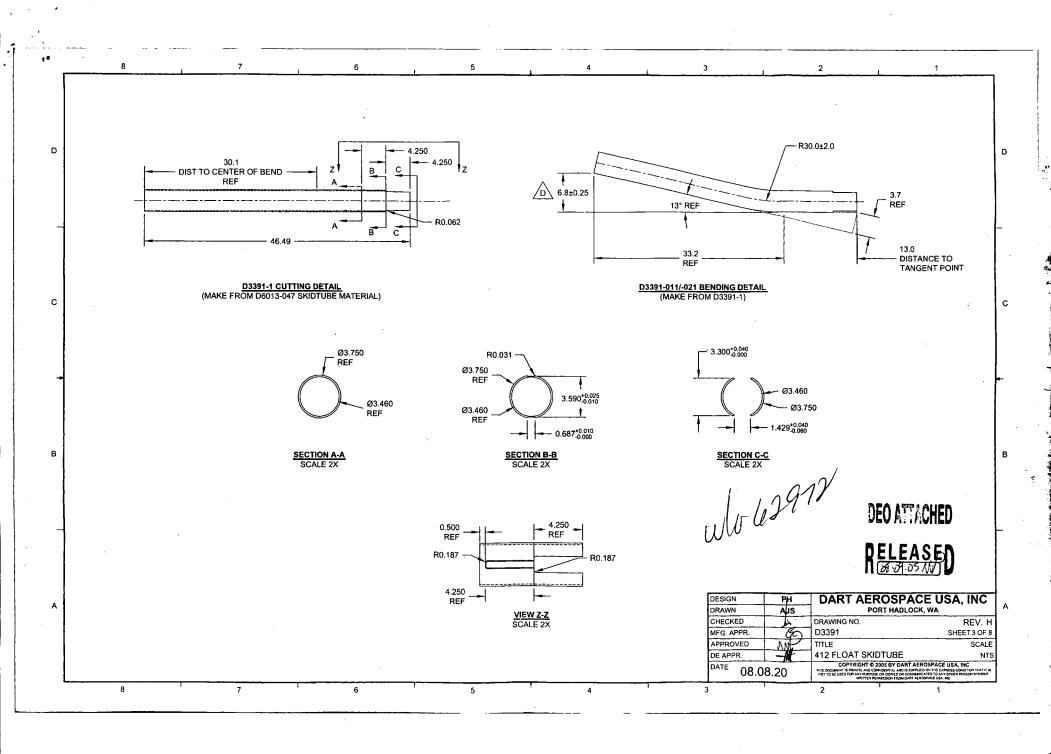
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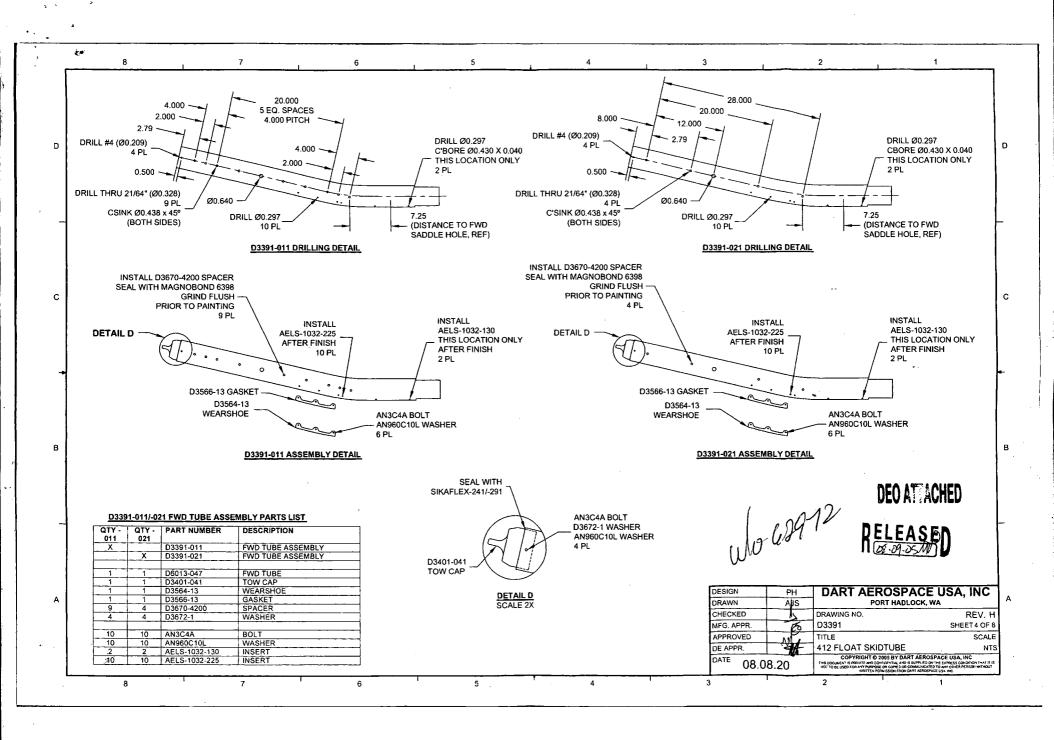
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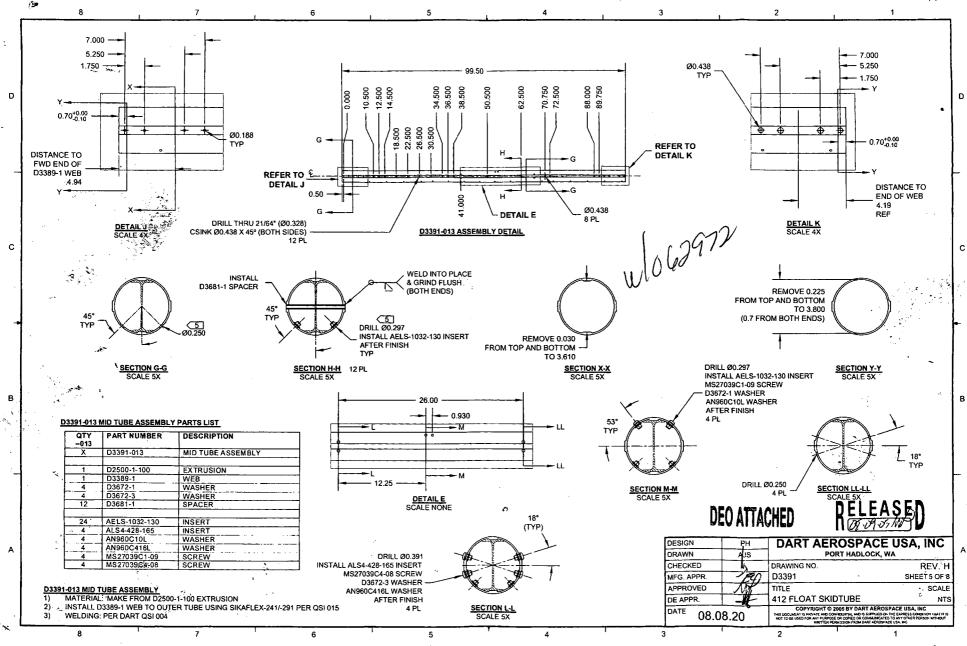
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NOTE: Date & initial all entries



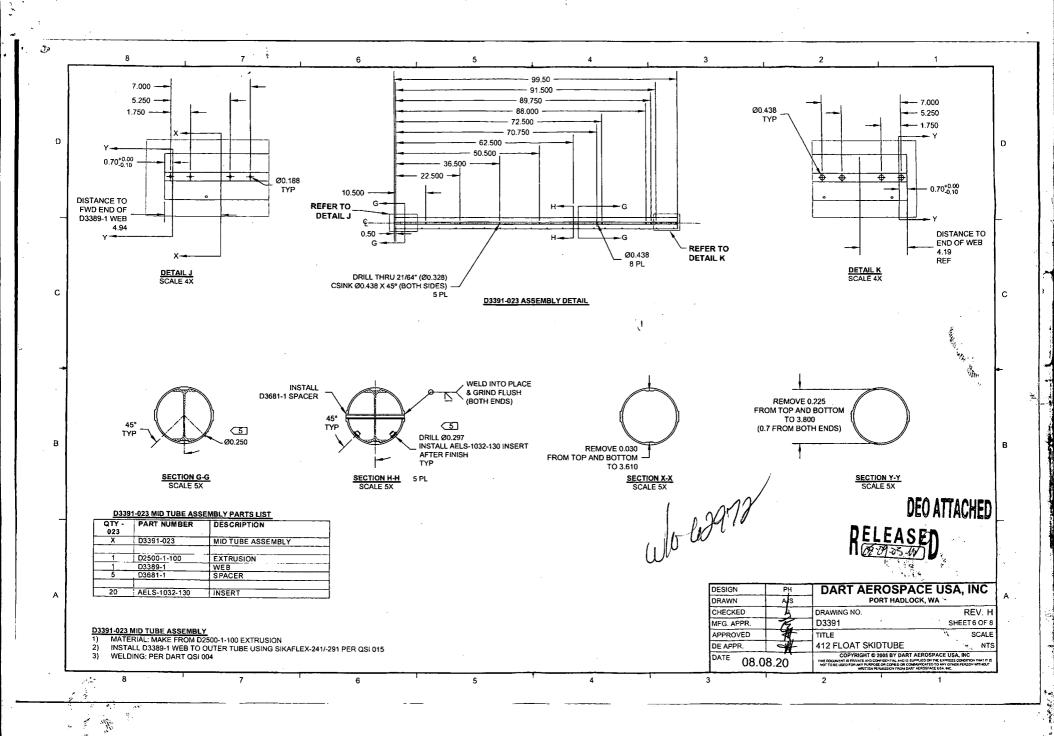
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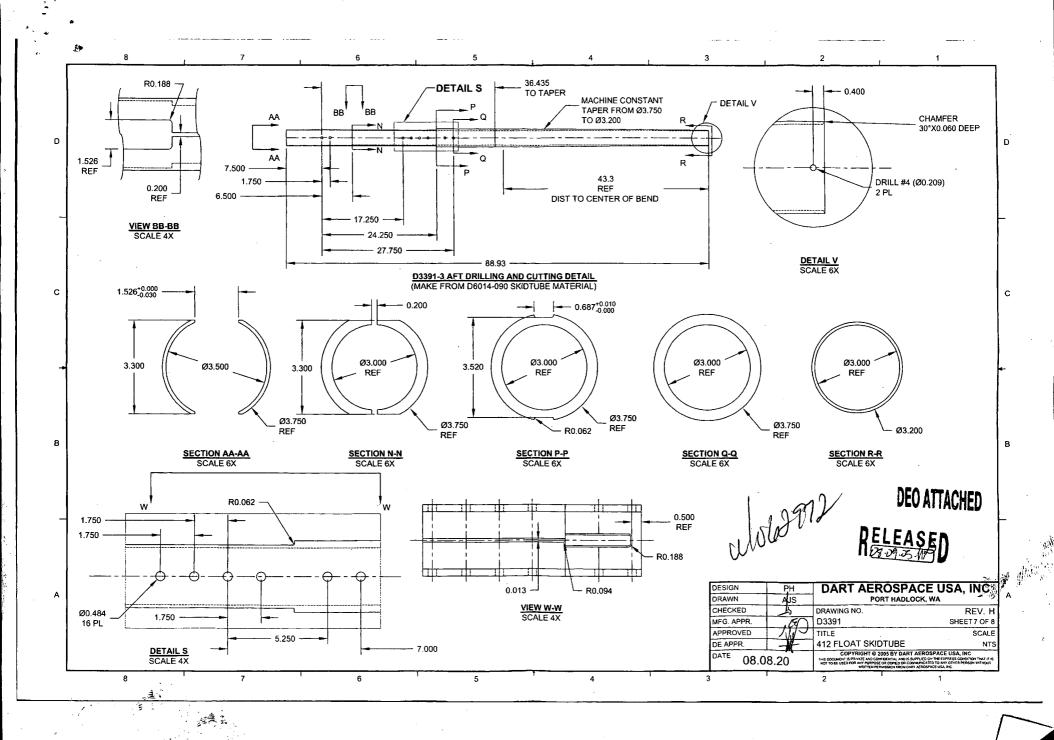


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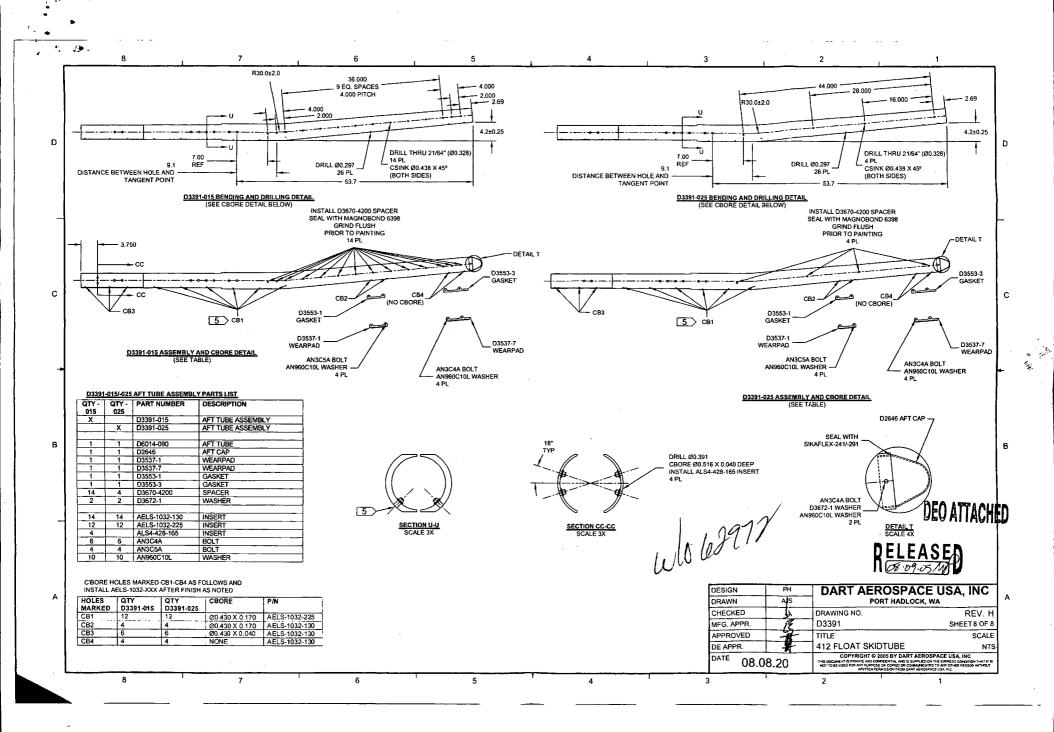
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NOTE: Date & initial all entries

DRAWING I	NO. TITLE		REV. H	DART AEROSPACE U	ISA, INC D.E.O. NO.	SHEET NO.	SCALE
D3391	412 FLOA	AT SKIDTUBE	ı	ENGINEERING OR	D3391-H-1	SHEET 1 OF, 1	NTS
DRAWN	A)	CHECKED	I,	MFG. APPR.	APPROVED MA	DE APPR.	
DATE	09.09.23	DATE 04	04.24	DATE 09/09/25	DATE 29/09/30	DATE 09/09/3	9

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PURPOSE:

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF D3391-041/-043 SKIDTUBES.

CHANGE:

AMEND NOTE 2 OF D3391-041/-043 SKIDTUBE ASSEMBLIES (ZN A6-1, A6-2) AS FOLLOWS:

2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH-AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.



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NOTE: Date & initial all entries

NO. 244

AWS D17.1.2001 QUALIFICATION TEST RECORD

2	·
Name: Darkland Elli	
Job number: 65328	
Part number: <u>03391-023</u>	
Description: mid tube	
Welding Process: Tig[2] Mig[]	
Base materiel: Celleene wer	M
Current: AC[] DC[]	

TEST REQUIREMENTS AND RESULTS

Visual: Penetration:	pass[fail[]
<u>UNACCEPTABLE</u>	
Cracks: Undercut: Pin holes: Overlap (cold lap) Porosity (surface): Coloration:	pass[4] fail[]
Qualifier Lat Rivers Welder Brankay Wort	Date of Test Coupon // 18 Date of Test Coupon // 18

The above named individual is qualified in accordance with AWS D17.1.2001 to weld